

What is claimed is:

1. A water-borne ionizing radiation treatment system comprising:
  - an ionizing radiation treatment system; and
  - means for supporting said water-borne ionizing radiation treatment system on a body of water.
2. The water-borne ionizing radiation treatment system of claim 1, further comprising:
  - a hot zone for staging contaminated materials;
  - an accelerator system for decontaminating the contaminated materials;
  - a cold zone for storing the decontaminated materials;
  - and
  - moving means for transporting the contaminated materials to the accelerator system, and for transporting decontaminated materials to the cold zone from the accelerator system.
3. The water-borne ionizing radiation treatment system of claim 2, wherein said hot zone and said cold zone are isolated from each other by a barrier.
4. The ionizing radiation treatment system of claim 2, wherein the supporting means further comprises water compartments adjacent to the accelerator system to provide radiation shielding.
5. The ionizing radiation treatment system of claim 2, wherein the accelerator system is aimed toward a bottom side of the supporting means.

6. The ionizing radiation treatment system of claim 1 wherein the supporting means includes a hull, structural members, or systems with increased thickness sufficient for radiation shielding.

7. The ionizing radiation treatment system of claim 2, wherein the accelerator system is aimed toward a front side of the supporting means, and said hot zone and said cold zone are located at a rear side of said supporting means.

8. The ionizing radiation treatment system of claim 2, wherein said accelerator system comprises an electron beam system.

9. The ionizing radiation treatment system of claim 2, wherein said accelerator system comprises an x-ray system.

10. The ionizing radiation treatment system of claim 1 wherein said ionizing radiation treatment system includes an independent power generation system.

11. A method of decontamination comprising the step of decontaminating material with an ionizing radiation treatment system located on a water-borne platform.

12. The method of claim 11 further comprising a step of providing radiation shielding by filling containers or compartments on said water-borne platform with water, and or filling the hull of said water-borne platform with water.

13. The method of claim 11 further comprising modifying the typical placement of said platforms hull, structural members, or systems to enhance the intrinsic radiation shielding of said platform.

14. The method of claim 11 wherein said step of decontaminating includes treating contaminating material with an accelerator system, said accelerator system comprising either an electron beam system or an x-ray system.

15. The method of claim 14, wherein said accelerator system is aimed downward toward a bottom side of said water-borne platform.

16. The method of claim 11, further said decontamination step is performed below the waterline within said water-borne platform.

17. The method of claim 11, wherein contaminated materials are routed to a "hot zone" and clean materials are routed to a "cold zone," said hot zone and said cold zone being isolated from each other by a barrier.

18. The method of claim 12, further comprising a step of providing a spraying device to take water from the platform to decontaminate contaminated material.

19. The method of claim 18, further comprising a step of capturing the runoff of said spraying device and returning it to the platform water compartments.

20. The method of claim 19, further comprising a step of decontaminating the runoff from said spraying device using said ionizing radiation treatment system.